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Territorial scenarios in Europe: Growth and disparities beyond the economic crisis

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Abstract

Up to the start of the present economic crisis (2008), Europe was characterized by a clear trend of convergence in the GDP level of European countries, which was able to counterbalance the opposite trend in intra-national disparities that took place in many countries – namely those with a more recent accession to the Union. The economic downturn of the last years, however, has brought this process of convergence to a halt, mainly as a consequence of the tight austerity policies imposed to many southern European countries. This evidence, recognized by the European Union in the last Cohesion Report ("the crisis has reversed the process of convergence of regional GDP per head and unemployment within the EU") brought to the fore the relevance of macroeconomic policies in regional development. Therefore in this paper, with the help of a newly built macroeconomic and regional forecasting model (MASST), the future of regional convergence / divergence in the EU is explored through four scenarios: a baseline one, recognizing the clear break of the crisis and three exploratory scenarios, depicting in a consistent way three different "territorial" strategies: supporting large metropolises vs. cities of second and third rank, vs. peripheral and lagging regions. Interestingly enough, the "cities" scenario proves to be at the same time the most cohesive and the most expansionary, shedding some doubts on the traditional equity/efficiency trade-off through an intermediate strategy based on the exploitation of a diffused territorial capital. Overall, diverging regional processes are forecasted from now to 2030.

Regional convergence, austerity policies, effects of the crisis, regional econometric models, regional scenarios

Zusammenfassung

Territoriale Szenarien in Europa: Wachstum und Disparitäten jenseits der Wirtschaftskrise

Bis zum Beginn der gegenwärtigen Wirtschaftskrise (2008) zeichnete sich Europa durch eine deutliche Tendenz zur Annäherung im BIP-Niveau der europäischen Länder aus. Dadurch konnte die gegenläufige Entwicklung intranationaler Missverhältnisse ausgeglichen werden, die in vielen Ländern stattfand – vor allem jenen, die erst vor kurzem in die Union aufgenommen worden waren. Der wirtschaftliche Abschwung der zurückliegenden Jahre hat diesem Konvergenzprozess jedoch Einhalt geboten, hauptsächlich infolge der strengen Sparpolitik, die vielen südeuropäischen Ländern auferlegt wurde. Diese Tatsache wurde auch im aktuellen Kohäsionsbericht der Europäischen Union anerkannt („Die Wirtschaftskrise kehrte den langjährigen Trend der Annäherung von BIP und Arbeitslosenquote innerhalb der EU um") und unterstreicht die Bedeutung einer makroökonomischen Politik für die regionale Entwicklung. In diesem Papier wird – mithilfe eines neu aufgestellten makroökonomischen Modells der Regionalentwicklung – die Zukunft der regionalen Konvergenz/Divergenz in der EU anhand von vier Szenarien erforscht. Ein Basisszenario würdigt die Krise als sauberen Schnitt; drei untersuchende Szenarien stellen drei verschiedene „territoriale" Strategien auf einheitliche Weise dar: Unterstützung großer Metropolen versus zweit- und drittrangiger Städte versus Rand- bzw. rückständiger Regionen. Interessanterweise zeigt sich das „Städte"-Szenario als das geschlossenste und gleichzeitig das expansionistischste, was – unter Berücksichtigung einer Übergangsstrategie, die auf der Ausnutzung eines diffusen territorialen Kapitals basiert – Zweifel am traditionellen Kompromiss zwischen Gerechtigkeit und Effizienz aufkommen lässt. Insgesamt werden Prognosen für unterschiedliche regionale Prozesse von jetzt bis 2030 erstellt.

Regionale Konvergenz, Sparpolitik, Auswirkungen der Krise, regionale ökonometrische Modelle, regionale Szenarien

Introduction[1]

Up to the start of the present economic crisis (2008), Europe was characterized by a clear trend of convergence in the GDP level of European countries, which was able to counterbalance the opposite trend in intra-national disparities that took place in many countries – namely those with a more recent accession to the Union. The inter-national convergence trend found its explanation in the positive effects of the successive enlargements of the Union towards lower-wage country's, in the development of European cohesion policies mainly addressed to less advanced countries, and, at the inter-regional level, in the natural process of convergence that in the long term accompanies the integration process. Development happens in fact in a concentrated way in its early stages, polarized in a countries' core area, but subsequently it spreads to more peripheral areas and to weaker sectors (Williamson 1965).

The economic downturn of the last years, however, has brought the natural process of convergence to a halt: as also recognized by the European Union in the last Cohesion Report "The crisis has reversed the process of convergence of regional GDP per head and unemployment within the EU. The challenge now is to ensure a prompt return to a strong growth path, especially in the less developed regions and cities" *(*EC 2013, p. 6).

In order to highlight how the future looks like in terms of regional growth and cohesion trends, pure economic theory is not sufficient. On the one hand, the traditional neoclassical approach has highlighted convergence as the main outcome of market forces (Borts, 1960; Borts and Stein, 1964); when this result was difficult to be empirically envisaged, conditional convergence was prompted, claiming the importance of similar structural characteristics of clubs of regions to achieve convergence (Chatterji 1994; Barro and Sala-i-Martin 1995). On the other hand, the old traditional Keynesian theories were stressing the existence of economic mechanisms reinforcing cumulative divergence trends (Myrdal 1957; Kaldor 1975).

But all these theories were developed in the long after-war period of continuous growth, where macroeconomic, financial and institutional elements played a pro-active role, creating opportunities more than constraints. As we know, the crisis has deeply changed this general context, imposing limits to public debts and deficits and tight austerity policies, particularly severe in the case of some southern European countries, not the most developed.

In this condition, the use of a forecasting growth models can help in providing empirical results that can be interpreted as first suggestions for integrations to theories and approaches developed during the period of economic growth.

In fact, the crisis has brought back to the attention of regional economics the role of macroeconomic elements. During the crisis, the previously catching up countries (Italy in the past, Spain, Greece, Portugal, and Ireland afterwards) and the New Member Countries in central and eastern Europe strongly reduced their growth trends, and a "reverse convergence" trends emerged with evidence. The effects of the crisis emerged through national macroeconomic restrictions; austerity measures "suggested" by the Union to diverging countries set limitations on some national economies, conditioning the way out of the crisis. This has been particularly relevant in those countries where the stability and growth pact exerts strong pressures on national debts and deficits.

These effects generated in the macroeconomic and national spheres, do not hit homogeneously the different regions of a country. For example, the increase in the spread on interest rates among countries that particularly hit the previous catching up countries generated three main macroeconomic effects, each involving different types of regions: a) a forced reduction of public expenditure , with stronger effects on regions with a higher dependency on public money; b) an increase in interest rates on private loans and bonds, penalizing particularly industrial regions with large shares of SMEs; c) a credit crunch as a consequence of the financial intermediaries' preference to investments on public bonds rather than on the private sector, hitting industrial regions.

Therefore, the new macro-economic conditions exert an influence not only on national growth patterns but also on regional ones, and consequently on the overall European convergence process – an effect that was not sufficiently considered in the literature. Differentiated regional impacts of the crisis may stem from the industry composition of the regional economy in regard to the traditional 'mix effect' of the shift-share analysis (Perloff et al. 1960) and/or from the highly differentiated presence of "territorial capital" assets (EC 2005; Camagni 2009) and the ability to mobilize previously "untapped" territorial resources. All these elements may contribute to the explanation of the new geography of regional resilience (Simmie and Martin 2010), addressing the structural, supply-side characteristics of each region.

The aim of this paper is to highlight how the future of European regions will look like under different scenario assumptions on territorial policies and of stringent macroeconomic conditions imposed by the crisis and by the specific policy response of the Union. The scenario building is based on the MASST model (in its third version), a macroeconomic regional growth model merging national macroeconomic, demand-side, elements with regional, bottom-up, supply-side elements.

On the basis of a coherent framework of macroeconomic and cohesion policies, four scenarios are built: a reference scenario, in which the present trends are extrapolated in the future, and three scenarios, differentiated on the basis of different assumptions on the kind of normative intervention, the size of the EU financial effort in structural policies and most of all on the geographical distribution of national and European policies.

1 This paper draws on the work developed by the authors for the ESPON ET2050 project. The results and the statements are exclusively those of the authors.

The paper is structured as follows. In section 2 a brief presentation of the MAAST model is presented. In section 3 the different scenarios are depicted. Section 4 presents the results of the baseline scenario, while section 5 contains the three alternative territorial scenarios. Section 6 presents some concluding remarks.

The MASST model: a short presentation

The logic of the model is neither that of a pure forecast nor that of a pure foresight.[2] Our approach can be termed a *quantitative foresight* in that it is the result of three major steps (Capello et al. 2008 and 2011; Capello and Fratesi 2009). The first involves scenario building whereby an image of the future is constructed on the assumption that a discontinuity will emerge in the main elements or driving forces that influence and regulate the system. The second step is to insert these changes into a model of structural relationships which, in a traditional way, links conditional (explanatory) variables and dependent variables. The qualitative assumptions of the first-step procedure are translated into quantitative ones linking the expected driving forces to specific values of the model's independent causal variables. The third step involves a simulation procedure leading to a 'conditional' forecast of the dependent variables.

The aim is not to achieve precise quantitative values of economic elements; nor, on the other hand, is it merely to provide a qualitative image of what the economic system will look like; the aim is to show *the main trends and relative behavioural paths* that will be at work *under specific assumptions* on how the main driving forces of change will evolve. Both the values assigned to the target variables and the regional values emerging from the final results indicate an *order of magnitude* and some relative *behavioural classes* (high-medium-low increase or decrease), rather than precise quantitative values.

From the methodological point of view, the approach consists in three main steps:

- a *theoretical step* identifying the theory behind the relationships in the model and formulating the model itself (in discursive and mathematical terms);
- an *estimation step* of the causal relationship model;
- a *simulation step* identifying: a) the driving forces (scenarios) expected to characterise the future development patterns; b) the implications of the scenario assumptions on the future values of independent variables of the model and c) the simulation procedure and the production of the economic and territorial outcomes.

The first and second steps have been made by enlarging and estimating once more the new version of the so called MASST 3 model, a macroeconomic regional growth forecasting model able to produce, under specific assumptions on the main driving forces of change, the effects on regional GDP growth rates for all NUTS2 regions of the old 27 EU member countries. With respect to previous MASST versions, the MASST3 model differs since it endogeneizes the public expenditure growth rates, and therefore the effects of macroeconomic trends and policies on regional growth (Capello et al. 2014).

MASST (in all its versions) is a model in which regional growth is the outcome of both regional and national factors, because regional growth is the result of the sum of the national component and of the differential growth component:

$$\Delta GDP_{rt} = \Delta GDP_{nt} + diff_{rt} \quad (1)$$

where ΔGPD_{rt} is the growth of regional GDP, ΔGPD_{nt} the growth of national GDP, and $diff_{rt}$ the growth differential shift of a region r compared to its nation n, in a certain period of time t.

Therefore, the MASST model comprises a national and a regional sub-model. The national sub-model encompasses all national macroeconomic aspects, which are important to embrace the effects of the crisis. The regional sub-model instead explains the competitiveness (supply side) aspects of growth, taking the territorial capital characteristics into consideration. The two sub-models are not separate but instead interact, so that any shock affecting one or more regions impacts on the growth rates of their countries (and of the neighbouring regions through spillover effects), while any shock at national level impacts on regions of that country in a heterogeneous way on the basis of their own territorial capital elements.

This structure differs substantially from the existing econometric regional growth models, which in general move towards a direct interpretation of absolute regional growth either by replicating national macroeconomic models, or by constructing complex systems of equations for each region linking the region to both the national aggregate economy and to the other regional economies through input-output technical coefficients.

The advantage of the MASST model's structure is that a strong interconnection between regional and national growth is established: national macroeconomic trends and policies generate an effect on both national and regional growth, but at the same time regional structures and policies affect both regional and national performance in an interactive national-regional manner. This structure allows account to be taken of complex vertical feedbacks between the regional and national economy without imposing a complex system of interlinked equations.

Estimations of the various equations that compose the MASST3 model confirmed the intuition that the structural relationships that hold the economic system together and its multiple linkages with the territorial system change between ordinary times and the period of crisis. A clear example in this regard is the consumption growth equation: in periods of non-crisis, the marginal propen-

2 On forecasting methodologies see, among others, Armstrong 1985, Hawkins 2001, Hendry and Clements 2001, Loomis and Cox 2000. On foresight methodologies see, among others, EC 2004, Miles and Keenan 2000, UNIDO 2004.

sity to consume is much lower than in periods of growth, slowing down the Keynesian multiplicative effects. At regional level, some structural relationships are influenced by the crisis, like the employment growth equation, which registers changes in what are identified as the most expansionary sectors. The changes in the relationships among macroeconomic and structural economic variables have been taken into consideration; in the simulation phase, the MASST3 model allows the choice between parameters estimated in the years of crisis and in ordinary times, on the basis of the assumption of the year in which the crisis will end.

At regional level, there are two important aspects that help explain the differentiated impact of the crisis on local economies: a region's industry composition and its settlement structure. The MASST3 model distinguishes between the role of manufacturing and service employment growth in explanation of regional differentials, and it considers the degree of industrial specialization measured by the location quotients at 2-digit ATECO sectors. This makes it possible to differentiate the effects of a shock of a sector at European level on the basis of the degree of the regional industrial specialization.

Moreover, the model includes a region's settlement structure. The crisis started in the financial sector, and in that phase, large urban areas specialized in high-value service functions (like international-level finance and insurance) were most exposed to the crisis. However, the economic downturn rapidly involved the real sector through the credit crunch and the consequent shrinking of global demand, and as a consequence generated greater pressure on industry and in general on 'exposed' sectors, and cumulatively on the general internal consumption growth and on demand for investments. Areas most exposed to the crisis suddenly became industrial areas, specialized in production functions, where the crisis particularly hit the unemployment rate. For this reason, the dynamics of the urban system is endogenized in MASST3. For the same reason, also the regional functional specialization is taken into consideration in MASST as an element explanatory of regional differentials. Assumptions on the evolution of specific functions in the different types of regions are possible in MASST; regional functional specification can explain resilience to the crisis.[3]

The MASST model can produce: i) GDP growth rates (and levels); ii) manufacturing, service and total employment growth rates (and levels); iii) population growth rates (and levels), for all EU27. All outputs can be delivered for different spatial breakdowns: at the EU aggregate level; by country; by groups of countries decided by the modelers; by NUTS2 of all 27 countries; by groups of regions decided by the modelers.

Three alternative territorial scenarios

The purpose of the paper is to create territorial scenarios under different assumptions about the main socio-economic driving forces of change that will act in the future, through the help of the MASST 3 model.

In this section we briefly present the qualitative assumptions of the alternative territorial scenarios, and of the baseline scenario, which represents an extrapolation of the present tendencies, under the assumption that no change in policies will be implemented up to 2030, and that the general slow economic recovery will start in 2016. In particular, the baseline scenario is based on two assumptions:

1. the global socio-economic and demographic trends of the past will continue, and no major change will alter the EU economy. In particular, it is assumed that no significant changes will occur in Europe's role in the world economy apart from continuation of the present socio-economic trends, which register a decline relatively to the emerging areas. Moreover, no major change is assumed in technology, so that no radical technological jump will take place before 2030. Translating this general framework into assumptions is not straightforward. Most of the trends have changed during the crisis; logical assumptions are required on which trends will return to the pre-crisis long-term pattern and which on the contrary will be permanently affected by the crisis;
2. European economic policies will remain as they are at present. Since the aim of the paper is to detect the impacts of the crisis, no policy reactions to the crisis itself are foreseen. For this reason, the scenario does not implement new policies, and sticks to the present European, national and regional ones. The stability pact targets decided by the European Commission (3 % of deficit/GDP) will remain the same as in the past. In the case of national policies, the various countries will try to maintain the present effort to achieve balanced national budgets, without strong spending and inflation. As regards regional policies, especially those of the European Union which are implemented in the model, the assumption is that they will remain as they are: e.g. for EU cohesion policies, the effort and distribution will be the same as in the programming period 2007-2013.

This trend scenario is the benchmark for three alternative territorial scenarios. The latter are based on different, and rather extreme, assumptions on the way territorial policies will be implemented in the future.

A first scenario is the so called *"megas"* (metropolitan growing areas) *scenario*. It is a scenario of economic competitiveness, developed through market forces, implying a privatised welfare system that gives rise to large public resources to repay the financial debt in 2030. In this market driven logic, the budget for cohesion policies is reduced, and mainly distributed according to an efficiency prin-

3 For further specifications on the general structure of the MASST3 model, see Capello 2007, Capello et al. 2008, Capello et al. 2011, Capello and Fratesi 2012, Capello et al. 2014.

ciple; at the same time public and private investments at national levels are concentrated in large cities, in the so-called "megas", i.e. on the most dynamic and innovative cities within each country: in other words, on the "national champions".[4]

A second scenario is the so-called *"cities" scenario*. In this scenario, public investments follow a different logic, and in particular that modern spatial development policies should be designed so as to maximize the capability of single policies to mobilize and "tap" previously "untapped" assets of territorial capital, and use them in the most efficient ways (Camagni and Capello 2014). As the Community Strategic Guidelines for Cohesion Policy have rightly and trail-blazing pointed out (EC 2005), the preconditions for development widely lie in a hugely differentiated and scattered endowment of "territorial capital", made up of natural and artificial specificities, varied settlement structures, cognitive and relational assets at different degrees of complexity and development. All these elements – especially those that are not yet fully or creatively exploited – represent the assets and potentials on which any development strategy should rely. In this logic, the concentration of public and private investment is in second-rank cities of each country. The actual welfare system is reinforced through increased taxation, and the financial debt repaid in 2050. The budget is maintained for cohesion policies.

The last scenario is the so-called *"regions" scenario*. This scenario is an equity-driven scenario, with a strong social policy framework, starting from a robust public welfare system, financed through public expenditure increase, with a consequence of delayed national financial debts repayment beyond 2050. In the same logic, the European Union significantly increases the budget for cohesion policies. All European and national financial resources are concentrated in less-developed areas, mostly rural and cohesion regions.

These qualitative assumptions have been translated into quantitative target variables for the MASST 3 model. The final results of the quantitative scenarios obtained by running the MASST3 model with the assumptions of the baseline scenario and of the three exploratory scenarios are presented in the next section.

A baseline scenario for Europe at 2030

Results at national level

Table 1 presents the aggregate results of the average annual growth rates between 2011 and 2030 of GDP, total employment, industrial and service employment, and population, for the 27 EU member countries as a whole. The same results are presented for two groups of countries:

- the old (EU15) countries;
- the new member states countries, those that joined the EU in recent times (from now on mentioned as New 12 countries).

The aggregate results already depict interesting messages:

- the baseline scenario registers an average GDP growth rate of 1.89 %, which is slightly lower than the long run trend for Europe, because of the slow coming out of the crisis;
- the New 12 countries register a slightly higher annual average GDP growth with respect to the western countries (1.93 %), but the limited difference signals that convergence rate toward western countries will decrease;
- employment grows at a sustained rate in Europe, meaning that large part of the recovery from the crisis comes from job creation. Part of the recovery, however, also comes from productivity gains, as signalled by the larger increase of GDP with respect to employment;
- productivity gains are particularly present in western countries with respect to the New 12 countries, where GDP growth mostly takes place through employment creation. Despite the negative population growth rates in this part of Europe, labour force is made available from employees leaving the agricultural sector (if Eastern countries' contribution of agriculture to total GDP decreased from 11 % in the 1990 to 6 % in the 2008, it is still higher than western countries' one, which is around 2.4 % in 2008) and from unemployed people returning to work;
- productivity gains are limited in New 12 countries mainly for two main reasons: i) the traditional reconversion from agriculture to manufacturing activities that has characterised these countries since the fall of the Iron curtain is now more contained (the share of agriculture reached 6 % of total GDP, and therefore the more contained shifts to industrial activities generate more limited productivity gains than before); ii) New 12 countries are characterised by a shift

Aggregate average annual growth rates between 2011 and 2030 (baseline scenario, in %)

	GDP	Total employment	Manufacturing employment	Service employment
EU27 member countries	1.89	1.58	1.38	1.63
Old 15 countries	1.88	1.53	1.48	1.54
New 12 countries	1.93	1.90	0.98	2.33

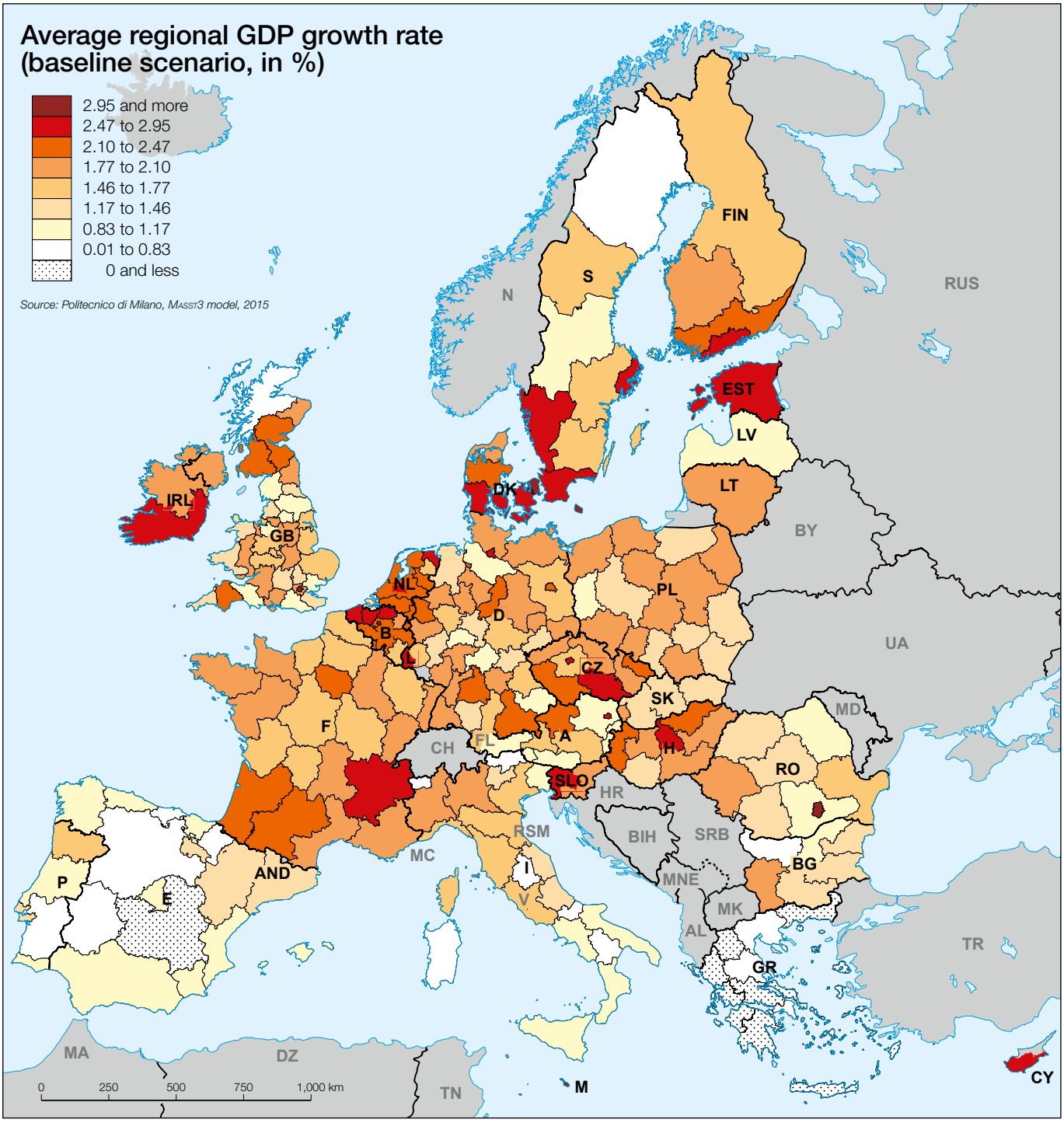
Source: Authors' elaboration on the basis of Masst3 model simulations

Tab. 1: Aggregate average annual growth rates between 2011 and 2030 baseline scenario

4 *Megas* cities are in fact defined as those cities (LUZ areas) that are characterized by more than 1 million inhabitants. Cities are instead identified as those LUZ areas with a number of inhabitants in a range from 1 million to 200,000 inhabitants. Regions are those that are below the 200,000 inhabitants. In all cases, data used to define the classes refer to 2011. The proposed classification of city size classes may be questionable, but in the absence of a commonly agreed typology this organization of the existing size information represents a neutral starting point for the empirical analyses.

of employment from manufacturing to services, evidencing a clear new stage of development from industry to services; however, this industrial reconversion does not bring with it gains in productivity, being the new services low-value added services, like commerce;

- a more contained positive trend in employment growth accompanies growth in western countries. In these countries, contrary to the New 12, an increase in productivity is evident, showing a higher GDP growth rate than the one in employment;
- an equilibrated increase of both manufacturing and service activities characterises western countries. This suggests that a process of reindustrialization will take place in these countries, a process that can find explanations in lower salaries as a result of the long crisis the crisis, and a slowing down in off-shoring processes, especially towards Eastern countries, the latter will more and more suffer from the constant erosion of their relative advantage in low labour cost;
- in western countries manufacturing increases mostly in traditional manu-



Map 1: Average regional GDP growth rate in the baseline scenario

facturing industries, re-launching entrepreneurship of high quality, as the productivity gains suggest.

Results at regional level

All the results described above are spatially differentiated at Nuts2-2010 level, and reported in Map 1, which depicts the annual average regional GDP growth rate in the baseline scenario, showing that: [5]

- *GDP growth is positive in all European regions*, with the exception of a very limited number regions in southern Europe, where the recovery after the crisis is not able to overcome the negative effects of the crisis in the first years of the period 2011-2030. These regions are the rural areas of Greece and Castilla-La-Mancha in Spain;
- in terms of GDP growth rate, there is a *two speed Europe*, since regions belonging to southern peripheral countries grow in general significantly less than northern countries. Southern European countries discount the difficult present conditions on their future evolutionary trajectories and their post-crisis growth is insufficient to recover with respect to other countries where the crisis is felt mildly;
- the *convergence process by New 12 countries is incomplete* – since these countries are only slightly outperforming the Western ones – and is uneven, since also within the New 12 countries GDP growth rates are differentiated. Eastern European countries still grow more than the others, but this is not enough to catch up with the GDP per capita levels of the Western countries by 2030;
- intra-national regional disparities increase in all countries, in New 12 and in Western ones. The regions with the capitals, the regions with the largest cities, and the more central regions at national level generally outperform the regions which are more rural and peripheral at national level. This is especially evident in Bulgaria and Romania, where Sofia, Bucharest and, to a lower extent, Timisoara are winners at the national level; France, where the highest rates are in Paris, Lyon, Toulouse and Bordeaux; Italy, where the differential between the richer North and the poorer Mezzogiorno increases; Greece, where the three regions with positive growth rates are Attiki, Thessalia and Kentriki Makedonia.

The convergence trend interrupted

In order to formally inspect the convergence trends, Theil indices for the whole regional sample have been calculated, thereby identifying within- and between-countries regional GDP variations. The two components and the general Theil indices have been calculated for the whole simulation period, viz. 2012-2030. Results are presented in Figure 1.

Figure 1 suggests that indeed the long-run convergence process is severely threatened by the crisis. Although between countries disparities maintain their decreasing trends, albeit at a much lower pace with respect to the last 15 years (Fig. 2), within countries disparities are driven upwards by the long-run effects of the current economic slump.[6] This upward trend is so strong that it also shifts upwards overall regional disparities. Thus, an insufficient or incomplete process of convergence between New Member States and Western countries, along with the negative shift of formerly relatively richer countries, such as Greece, Portugal, Spain, and Italy,[7] is matched by an increasing process of concentration of wealth and resources in capital regions within countries. The simultaneous process of convergence slowdown and regional concentration implies future cohesion policies will play a major role in steering such process, especially in prolonged periods of fiscal cutbacks.

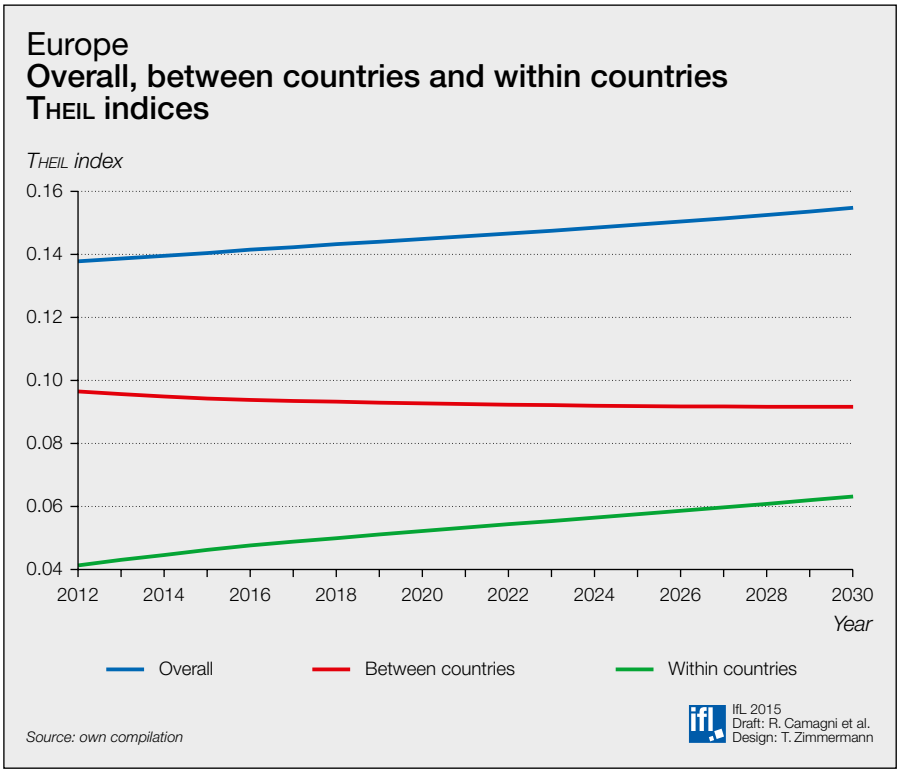


Fig. 1: Overall, between-countries and within-countries Theil indices, 2012-2030

5 Given the limited space for this paper, the regional results on the industrial and service employment growth rates that the MASST model provides – though extremely interesting – are not included in this work.

6 It is interesting to remember that always a leap in international integration has determined an increase in intra national disparities: Mezzogiorno started to diverge exactly after 1958 (when the Rome Treaty was signed); Spain and Portugal did the same for 15 years after accession; eastern countries did after accession. In the medium run things may reverse but it is more likely that some regions can make it (as the Third Italy in 1970-90) than the more peripheral and lagging regions. The entire history of the EU is a history of increasing intra-national disparities, by and large.

7 EUROSTAT figures suggest that Spain and Italy, in particular, moved in the lower 50 % of the per capita GDP distribution within the EU27.

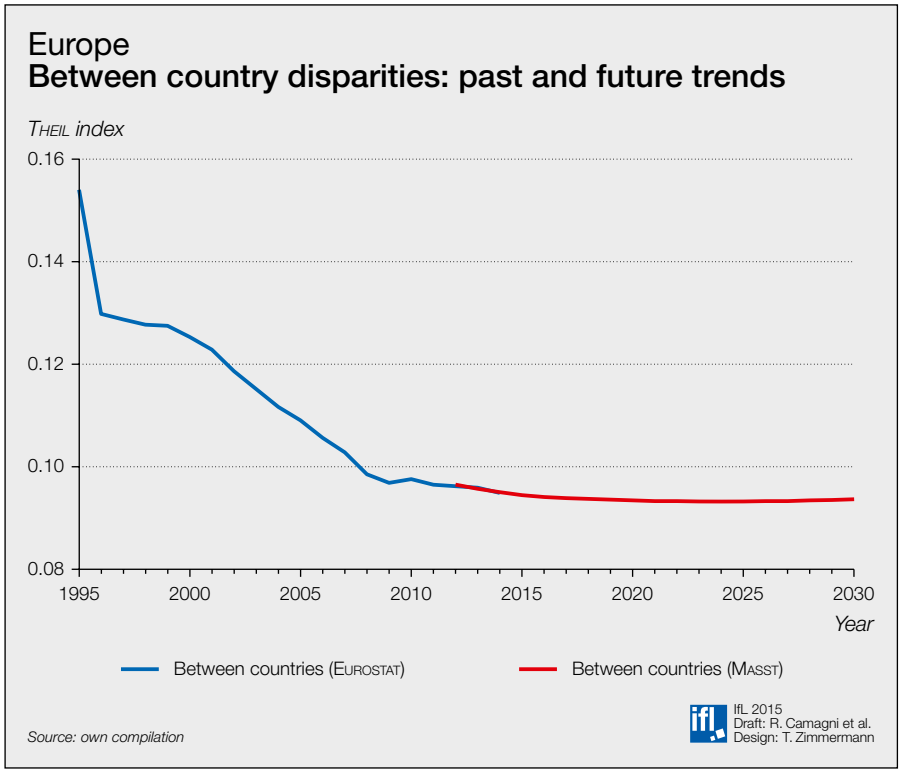


Fig. 2: Between country disparities: past and future trends

Figure 2 shows the between country disparity trends since 1995: while during the periods of deep EU enlargement (1995-2005), between country disparity trends strongly decreased as a result of the positive effects of the enlargement, since 2008 a clear fall in convergence took place, as a slowdown of GDP growth rates of Eastern countries and a drastic fall of GDP growth in Southern countries (Greece, Spain, Portugal and Italy).

These disappointing results may be quite surprising with reference to the regional development literature in Europe, where the reduction of disparities was recognized since many years and often underlined – even if in reality it was determined by a convergence among countries and not among regions. But their likelihood increases in the light of the most recent institutional documents and macro-economic debate. In the Commission's 2014 Report on Cohesion the crisis is indicated as having "been highly disruptive in many parts of the EU" and having "reversed the long-term trend towards a narrowing of regional disparities" (EC 2014, p. 1). Beyond that, since at least 2013, a new consciousness – and new evidence - has emerged concerning austerity policies and the fiscal compact effects on aggregate growth. The previous persuasion on the virtuous effects of fiscal cutbacks in highly indebted countries [8] was overcome by a new evidence on some errors of optimism in official growth forecasts with reference to the size of the multiplier of fiscal policies: forecasts "have underestimated fiscal multipliers, that is the short term effects of government spending cuts or tax hikes on economic activity" and "growth disappointment" was found to be "larger in economies that planned greater fiscal cutbacks" (BLANCHARD and LEIGH 2013, p. 1), such as in the above mentioned countries like Greece, Spain, Portugal and Italy.

Results of the three territorial scenarios

Table 2 presents the annual average GDP growth rate of the baseline and of the three exploratory scenarios, while Table 3 presents the annual average growth rates with respect to the baseline of the three scenarios for what concerns GDP, total employment, and its subdivision between manufacturing and service.

The "cities" scenario is the most expansionary scenario in terms of GDP, followed by the "megas" scenario and then by the "regions" scenario, and this holds particularly for western countries, although also the New 12 countries show a strong similarity between the "megas" and the "cities" scenarios. The higher expansion of growth in the "cities" scenario can be explained by the higher and more efficient exploitation in this scenario of territorial capital elements, of local specificities, present in both large and second rank cities that allows local economies to achieve higher competitiveness. Development based also on second rank cities implies the existence of an integrated and equilibrated urban system, made of efficient second rank cities working with first rank cities in providing quality services and allowing the latter to avoid strong diseconomies of scale that can be of detriment to growth. The weak presence of equilibrated and efficient urban systems in the Eastern countries may explain why these nations register very similar growth rates between the "megas" and the "cities" scenarios, being both

Annual average GDP growth rates between 2011 and 2030 (in %)

	Baseline	Megas	Cities	Regions
EU27 member countries	1.89	2.22	2.31	1.82
Old 15 countries	1.88	2.22	2.31	1.81
New 12 countries	1.93	2.22	2.23	1.98

Source: Authors' elaboration on the basis of MASST3 model simulations

Tab. 2: Annual average GDP growth rates between 2011 and 2030

8 Positive effects coming from increased confidence were supposed to overcome the negative effects coming from contraction of public expenditure.

Annual average growth rate between 2011 and 2030 (in %)

	GDP*	Total employment*	Manufacturing employment*	Service employment*
Megas scenario				
EU27 member countries	0.33	0.34	0.74	0.23
Old 15 countries	0.34	0.35	0.82	0.24
New 12 countries	0.29	0.25	0.41	0.19
Cities scenario				
EU27 member countries	0.42	0.38	0.28	0.41
Old 15 countries	0.43	0.38	0.31	0.40
New 12 countries	0.30	0.37	0.12	0.46
Regions scenario				
EU27 member countries	-0.06	-0.03	-0.30	0.04
Old 15 countries	-0.07	-0.03	-0.40	0.04
New 12 countries	0.05	0.00	0.09	0.05

Source: Authors' elaboration on the basis of MASST3 model simulations ** with respect to the baseline scenario*

Tab. 3: Annual average growth rate between 2011 and 2030) with respect to the baseline of GDP, total employment, manufacturing and service employment

the result of growth based on efficient first rank cities. With respect to the baseline, New 12 countries gain the same from a "megas" and a "cities" scenario, while the western countries have a clear higher advantage from the "cities" scenario than from a "megas" scenarios when compared to the baseline.

The "regions" scenario tells a different story: European countries as a whole gain less from this scenario than from the baseline scenario. When the average growth rate is divided between western and New 12 countries, the advantage that the latter countries achieve with respect to the baseline emerges, confirming that when cohesion policies are reinforced, their effect is visible. However, the "regions" scenario is not the one from which the New 12 countries gain the most compared to the baseline; both the "megas" and the "cities" scenarios register higher growth rates than the "regions" also for the New 12 countries. This result underlines the importance of a "competitiveness" driven attitude, and at the same time reminds the relatively lower effect of cohesion policies when they are not accompanied by an endogenous effort in moving towards competitiveness. The two combined aspects, cohesion policies from one side, and local competitiveness from the other, can probably be the best recipe for growth.

When trends in employment are analysed with respect to the baseline (Tab. 3), other interesting messages emerge, namely:

- the "megas" scenario registers a higher manufacturing than service employment growth rate, and this is particularly true for western countries. This result can be interpreted in light of the higher competitiveness that in the megas scenario is foreseen for high-tech industries;
- in the "cities" scenario, service employment is more expansionary than manufacturing, and this is particularly true for the New 12;
- the "regions" scenario is characterised by a higher manufacturing employment growth rate than the other two scenarios in the New 12 countries, while western countries register a higher service employment growth rate than the manufacturing one.

These results suggest that each scenario is accompanied by a relative increase of a specific industrial profile in each block of countries. The most competitive scenario, namely the "megas" scenario, is in favour of a reindustrialization process all over, and especially in the western countries, being a scenario based on a relaunch of new technological paradigms, higher rhythm of innovation, higher productivity linked to an increased share of high-level functions. This is also based on the initial hypotheses on high-value added manufacturing activities, which are assumed to face with increasing competitiveness the challenge from emerging countries.[9]

The "cities" scenario registers a higher expansion of service employment with respect to the baseline; being a more spatially diffused scenario, both population and business services are required all over Europe. In the "regions" scenario, the trends in the sectoral profile are different between western and Eastern countries; the high social welfare requirements call for additional population services in western and eastern countries, but the latter benefit from additional cohesion funds for the re-launch of industrial activities.

Evolution of regional disparities in the three exploratory scenarios

Figure 3 presents the Theil indices, measuring the trend in regional disparities that accompany the four scenarios. In particular, Figure 3a represents the total regional disparities, while Figure 3b and 3c separate out the trend in disparities among countries (between country disparities) and among regions within countries (within country disparities) respectively.

The first interesting message is that all four scenarios register an increase in regional disparities (Fig. 3a). There are, however, differences between countries with respect to the baseline: the "megas" scenario is the one registering the highest increase in regional disparities. Cohesion and social policies are able to keep the increase in regional disparity caused by the present crisis under control.

9 A more detailed discussion of the conceptual underpinnings of the assumptions behind the three scenarios is available in ESPON (2012).

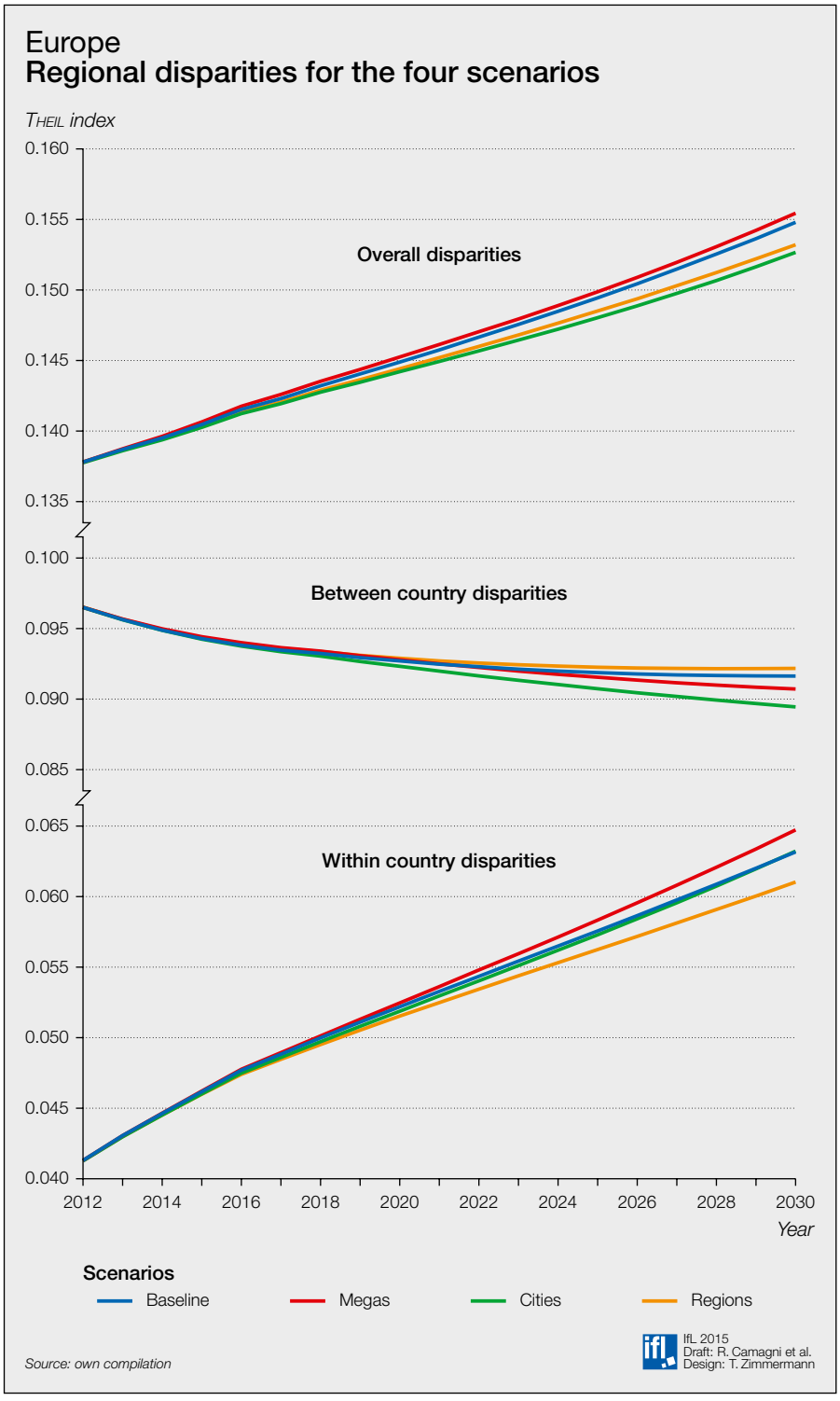


Fig. 3: Regional disparities (Theil index) for the four scenarios

In all scenarios, between country disparities decrease (Fig. 3b), while total disparities increase is caused by an increase in the *within* component (Fig. 3c). The "regions" scenario registers a more contained decrease in the between country disparities, and a limited increase in within-country disparities; cohesion policies are therefore more useful to act on core/periphery disparities within a country, rather than being able to increase the catching up of the eastern countries towards the western.

The most competitive scenario, the "megas" scenario, strongly worsen intra-national disparities, pushing growth through the national champions; however, is improves the intra-country disparities, imposing a competitive edge also to eastern countries, that are able to catch-up thanks to their competitiveness policies even more than in the baseline.

The most expansionary scenario, the "cities" scenario, registers also the lowest regional disparities among the four scenarios (Fig. 3a); the disparities among countries decrease the most among the four scenarios (Fig. 3b), while the within country disparities are similar to the baseline (Fig. 3c), being the amount of budget devoted to cohesion policies the same in the baseline and in the "cities". Moreover, the "cities" scenario has more contained within country disparities than the "megas". This result can be explained by the fact that the "cities" scenario is oriented towards a competitive but spatially dispersed growth, based on the specificities and territorial capital elements of each region. Each nation therefore grows not only through its champions, but through equilibrated urban systems, and through an efficient exploitation of local territorial assets.

Despite the relatively poorer performance of NMCs in this scenario, catching up countries in Western Europe (Italy, Spain, Greece, and Portugal) host a large number of second-rank cities which benefit the most in this scenario, thus causing the large decrease in between countries disparities shown in Figure 3b.

Sensitivity analysis

Results of modelling are always dependent on the assumptions made. Therefore, it is very important to inspect the sensitivity of the single results to changes in some exogenous assumptions, as, in the multiple interactions happening inside the operational logics of models, some variables may prove much more relevant than others in determining the final outcome (and therefore their future assumed trend should be more carefully assessed).

In our exercise, the sensitivity of a Theil index of regional disparities was

tested concerning a list of variables, linked to macro-economic elements or to relevant demand-supply elements like foreign direct investments in New Member Countries. This last variable did not prove to impact on disparities: even hypothesizing a faster growth of FDI after the crisis, the catching-up process of NMCs was not substantially lifted, as their direct benefits were counterbalanced by an increase in imports.

Two variables, on the other hand, proved very effective in determining growth potentials of countries (and consequently of their regions): namely the expected (exogenous) inflation rate of NMCs with respect to Old Member Countries and the expected rise in internal average tax rate in countries with a high public debt. As the countries involved, in both cases, are by and large lagging with respect to the European average in per capita GDP, a change in these exogenous variables bears a significant impact on the regional disparities index.

In particular, in the first case, a decrease in the expected inflation rates in Eastern Member countries (from 5 % assumed in the baseline scenario to 3 %) keeping equal to 2,5 % inflation rates in Western ones, is likely to generate a better control of the former group of countries on their external competitiveness, and therefore contribute, through higher exports, to faster catching-up with respect to the latter group. This process is well visible in terms of its effects on regional disparities in the EU (Fig. 4): between countries disparities would decrease substantially with respect to what was forecasted in the baseline scenario and consequently, in presence of a persistent negative trend in within countries disparities, total disparities would show only a slight increase.

This important result could lead us to conclude that this precise variable should be subject to a careful monitoring both by model builders, in order to continuously figure out its most likely future trend and by policy makers, given its strong potential effects on NMCs economic performance.

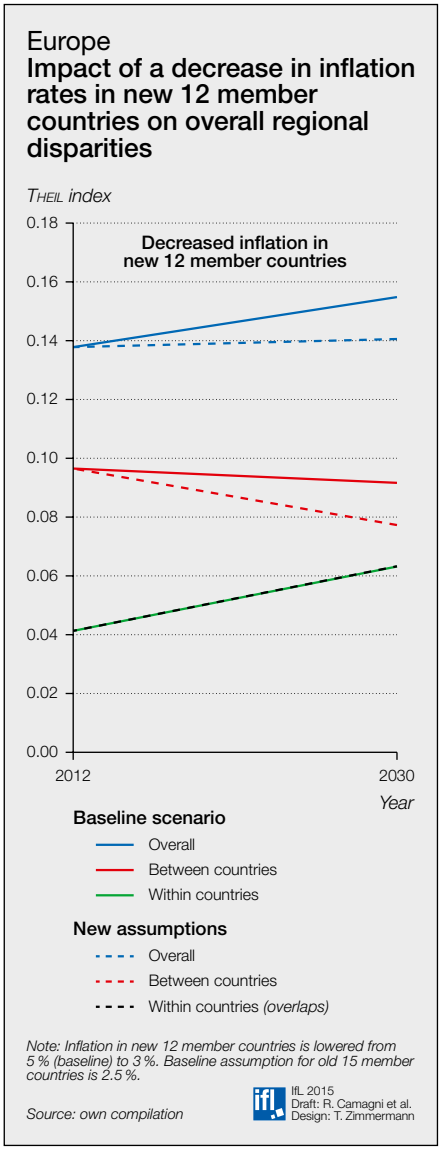


Fig. 4: Impact of a decrease in inflation rates in new 12 member countries on overall regional disparities

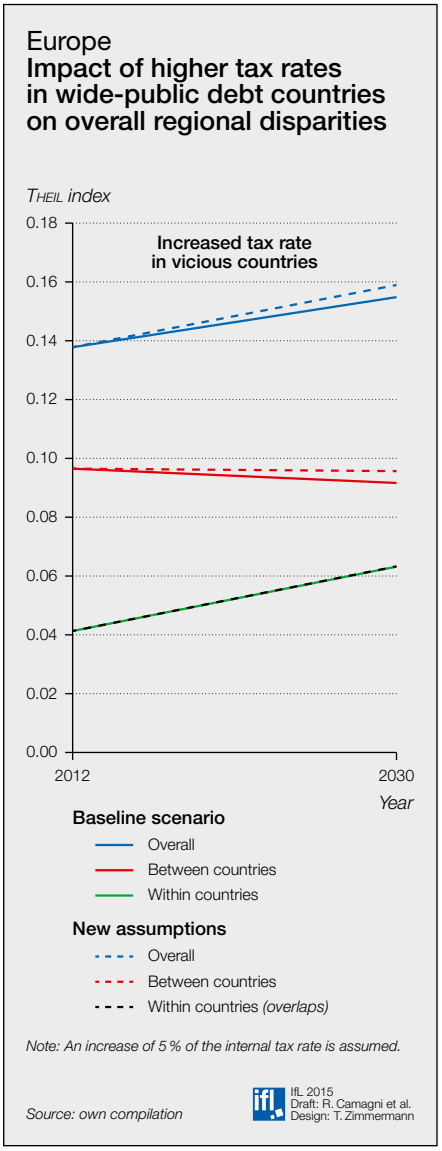


Fig. 5: Impact of higher tax rates in wide-public debt countries on overall regional disparities

The second variable inspected in the same way is tax rate in highly indebted countries: a rise of internal tax rates imposed by excessive deficits or by EU constraints would jeopardise the potential growth of these countries, and consequently determine a rise in total disparities (Fig. 5).

Both simulations contain important economic policy implications. In order to maintain their growth potentials, Eastern countries have to keep increase in wages at the level of increases in productivity; by the same token, an increase in tax rate in vicious countries would strongly put under severe threat future convergence trends.

Conclusions

The results of our "constrained foresight" on regional development in Europe up to 2030 may be considered quite surprising, if compared with the traditional debate in the regional development literature which took place in the long period of economic after war expansion. The recent crisis has taken to the front new elements of a macroeconomic nature that were not so influent previously but that are due to determine huge changes in the performance of both countries and regions. The catching up process by previously relatively lagging countries, which happened in the period 1960-2000, accompanied by growing disequilibria in

public (but sometimes also private) debts was suddenly stopped by the crisis and by the European austerity policies imposed to these countries, driving to a reversal in the previous virtuous process of reduction of regional disparities. Beyond that, important differences in the impact of the crisis on the single European regions is increasingly expected: relatively lagging regions are generally more dependent on, nowadays contracting, public expenditure and more sensitive to credit crunch phenomena. And eight years of continuous crisis are due to generate strong structural effects and stepbacks that will be difficult to overcome completely in many countries in the next future.

The crisis generated both negative country effects in southern European countries and a lower catching-up pace in Eastern countries, all trends that econometric forecasts indicate that will not be easily overcome in the next future. This result reinforces the role of cohesion policies, even in a period of tight availability of public resources, with the clear role to mitigate the disruptive effects that the economic crisis has (and will continue) to generate on regional disparities.

The second important finding is that a "cities scenario", which embraces the philosophy of supporting second rank city regions, highly diffused in Europe and representing potentially productive areas, rich of specific, not fully exploited territorial capital assets and un-exploited agglomeration economies, results to be the most expansionary and most cohesive scenario, looking at the same time to enlarge the development area in relatively advanced regions and to pick the relatively better structured areas, namely urban areas, in lagging regions. In this case, the paper advocates in favor of a strengthening of cohesion policies, denying the existence of the assumed, traditional trade-off between cohesion and development goals, if a true place-based policy is followed. The new target should be the largest mobilization of existing territorial capital assets, and in particular of local excellences, present and dispersed in almost all regions, though a bottom-up 'discovery' process led by local élites and intermediate bodies, tailored upon the potentials and specificities of the single places.

The last important result emerges for what concerns Eastern countries' future growth trajectories. The latter turn out to be strongly dependent on an increase in wages in line with increases in productivity, so to keep their price competitiveness. By the same token, our results highlight that an increase in tax rate in vicious countries would strongly put under severe threat future convergence trends.

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Резюме

Роберто Каманьи, Роберта Капелло, Андреа Караглиу, Уго Фратези

Территориальные сценарии в Европе: рост и различия в условиях экономического кризиса

До начала текущего экономического кризиса (2008 г.), Европа характеризовалась чёткой тенденцией конвергенции в уровне ВВП входящих в неё стран. Это позволило сбалансировать противоположные тренды внутринациональных различий, которые имели место во многих странах - особенно тех, которые были недавно включены в Евросоюз. Однако экономический спад последних лет остановил этот процесс сближения - и в основном из-за политики строгой экономии, навязанной многим странам Южной Европы. Этот факт был также признан в последнем докладе Европейского Союза/Kohäsionsbericht («Экономический кризис повернул вспять долгосрочную тенденцию конвергенции ВВП и уровня безработицы в пределах ЕС») и подчёркивает важность макроэкономической политики регионального развития. В статье с использованием новой макроэкономической модели регионального развития изучается будущее региональной конвергенции/дивергенции в ЕС на основе четырёх сценариев. При этом базовый сценарий исходит из объективности кризиса, а три исследовательских сценария объединяют три различные «территориальные» политики, такие как поддержка развития крупнейших городов по отношению к городам второго и третьего ранга и городов по отношению к периферийным и отсталым регионам. Интересно, что «городской» сценарий является самым закрытым и одновременно экспансионистским, что - с учётом стратегии перехода, основанной на использовании диффузного территориального капитала - вызывает сомнения относительно традиционного компромисса между справедливостью и эффективностью. В целом разрабатываются прогнозы различных региональных процессов до 2030 г.

Региональная конвергенция, политика строгой экономии, последствия кризиса, региональные эконометрические модели, региональные сценарии

Résumé

Roberto Camagni, Roberta Capello, Andrea Caragliu et Ugo Fratesi

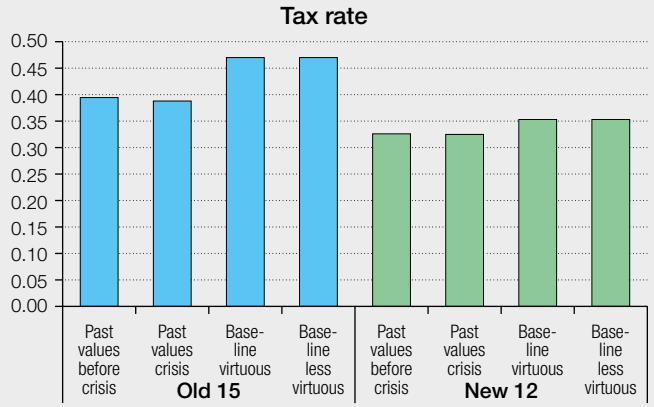
Scénarios territoriaux en Europe: Croissance et disparités au-delà de la crise économique

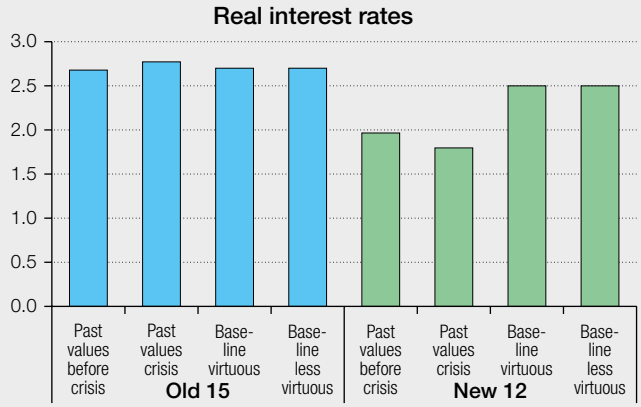
Jusqu'au lancement de la crise économique actuelle (2008), l'Europe s'est caractérisée par une nette tendance à la convergence du niveau du PIB des pays européens, qui a pu contrebalancer la tendance inverse à des disparités intra-nationales observée dans de nombreux pays – à savoir ceux ayant accédé plus récemment à l'Union. Le déclin économique des dernières années, cependant, a interrompu ce processus de convergence, principalement comme conséquence des strictes politiques d'austérité imposées principalement aux pays d'Europe méridionale. Cette évidence, reconnue par l'Union Européenne dans son dernier Rapport sur la Cohésion («la crise a inversé le processus de convergence du PIB régional par habitant et du chômage au sein de l'UE»), a mis en exergue l›importance des politiques macroéconomiques en matière de développement régional. Par conséquent, dans cette contribution, avec l›aide d›un modèle de prévision macroéconomique et régionale nouvellement conçu (MASST), le futur de la convergence/divergence régionale au sein de l'UE est exploré au travers de quatre scénarios: un premier, de référence, reconnaissant la franche rupture de la crise, et trois scénarios exploratoires, dépeignant d'une façon consistante trois différentes stratégies "territoriales": l'appui au grandes métropoles vs celui aux villes de second ou troisième rang vs celui aux régions périphériques et aux régions accusant un retard. Il est intéressant d'observer que le scénario «des villes» se révèle être en même temps le plus cohérent et le plus expansionniste, jetant le doute sur le compromis traditionnel équité/efficacité par une stratégie intermédiaire basée sur l'exploitation d'un capital territorial diffus. Dans l'ensemble, des processus régionaux divergents sont à prévoir d'ici à 2030.

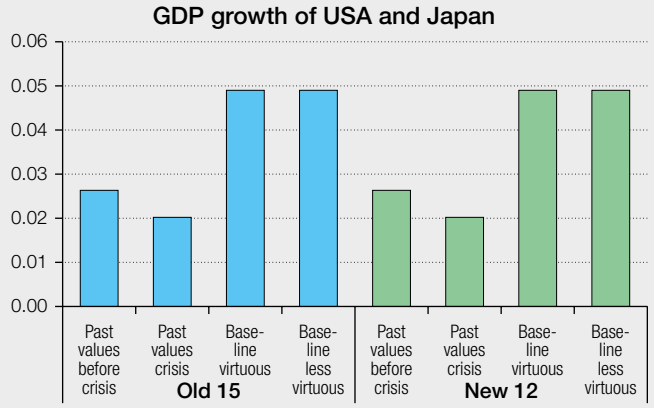
Convergence régionale, politiques d'austérité, effets de la crise, modèles économétriques régionaux, scénarios régionaux

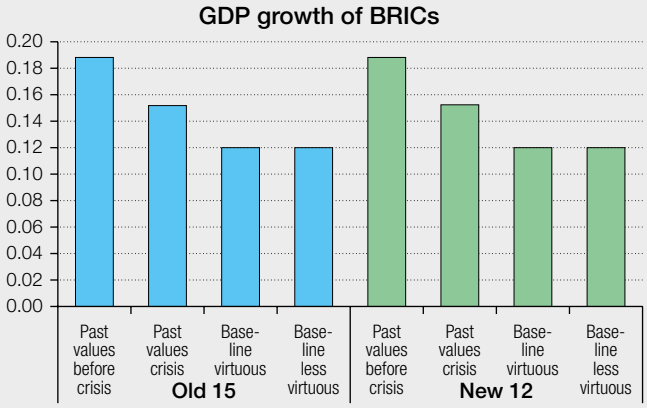
Technical Appendix: Quantitative Assumptions

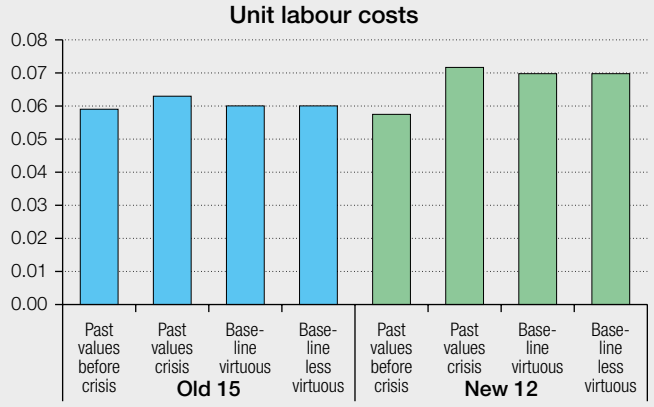
National targets in the baseline scenario and real values from recent past (1)

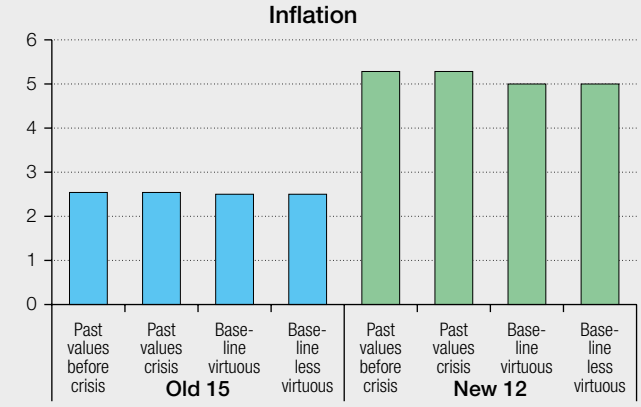


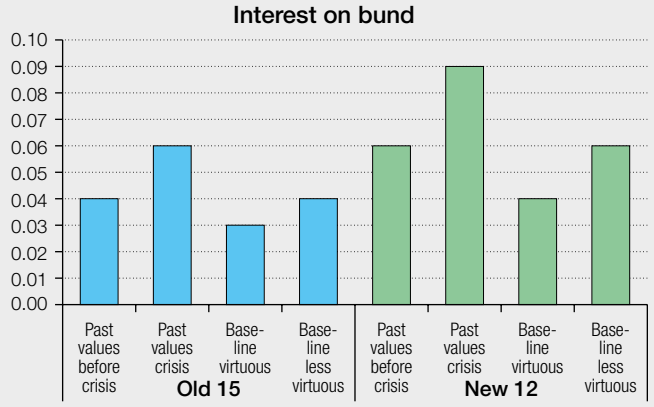


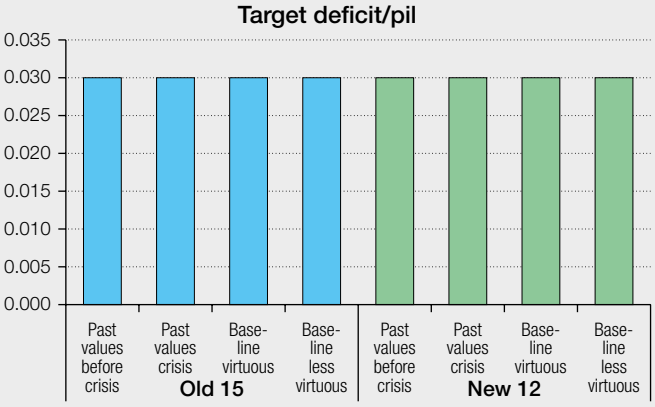












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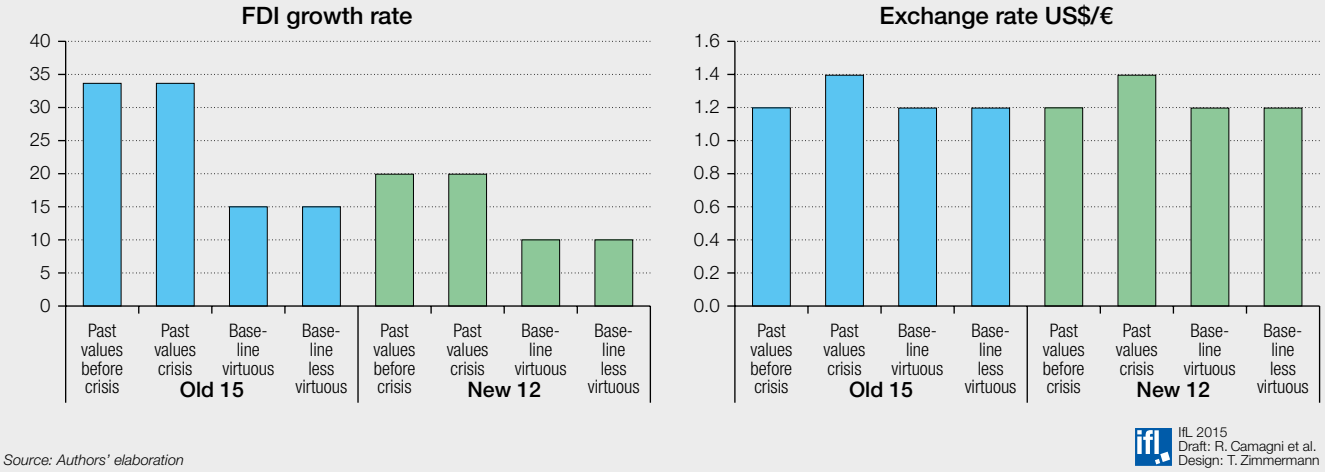
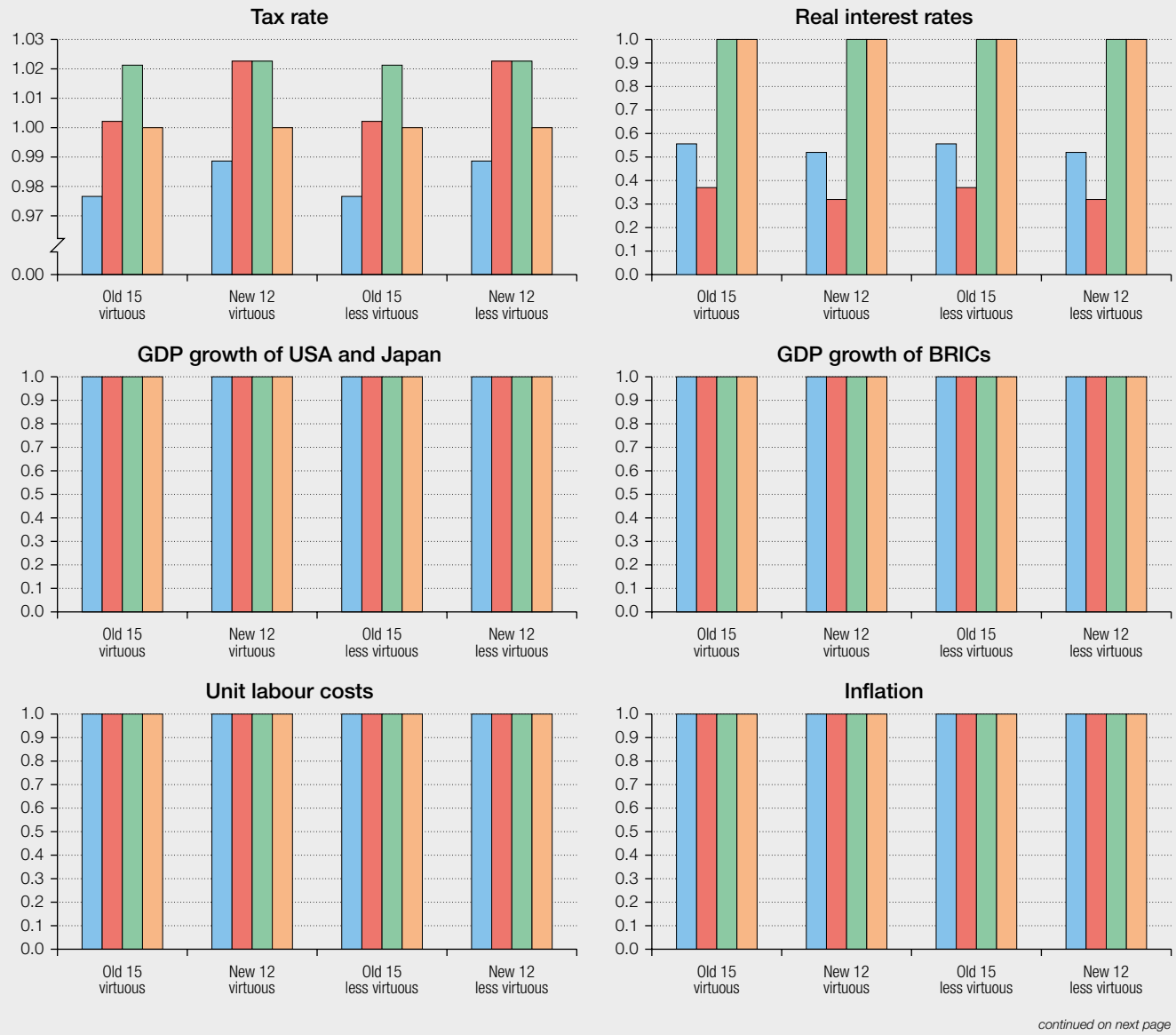
National targets in the baseline scenario and real values from recent past (2)



Source: Authors' elaboration

Exploratory scenarios are mostly territorial in nature; therefore, they are not differentiated with respect to most external macroeconomic conditions.

National targets in the exploratory scenarios (1)



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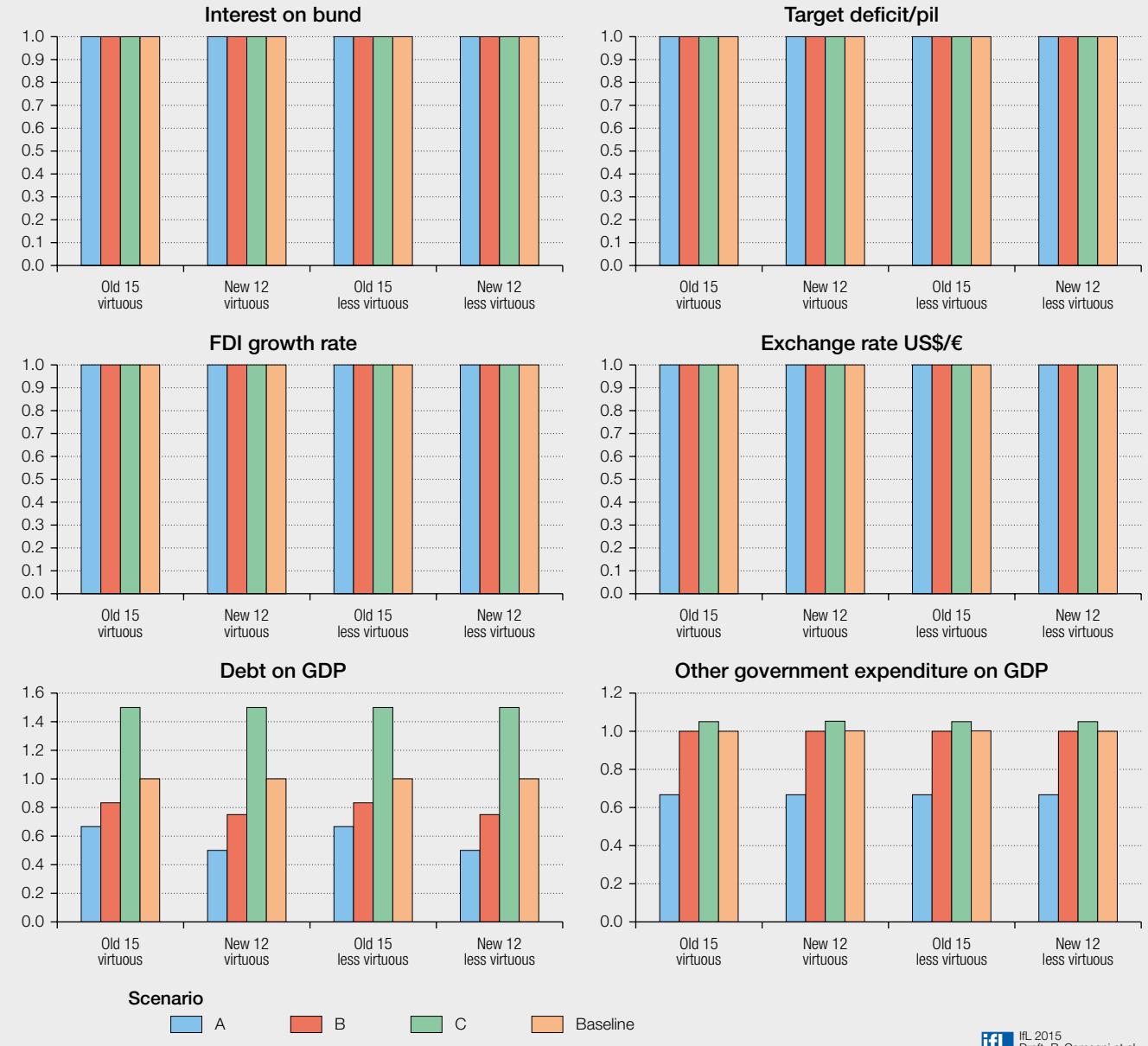
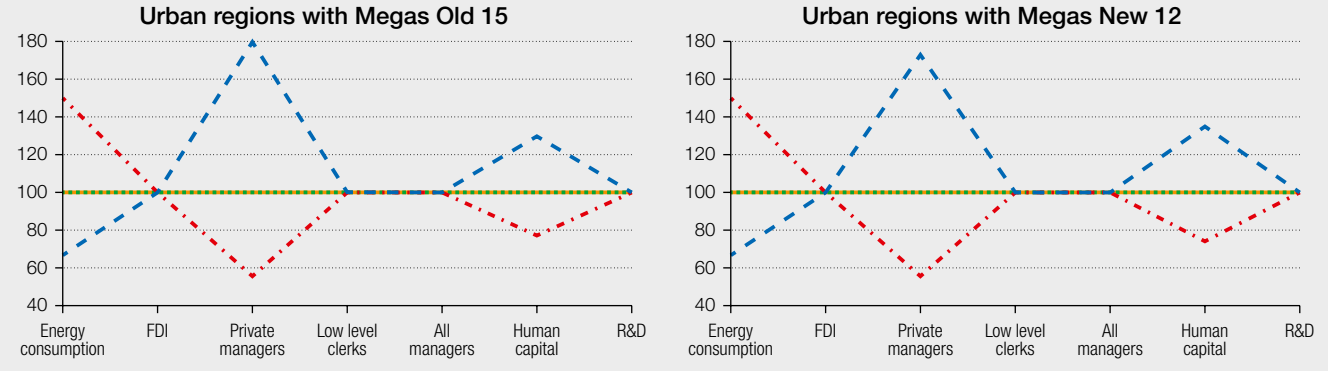
National targets in the exploratory scenarios (2)



Source: Authors' elaboration

Regional targets in the exploratory scenarios by regional typology (1)



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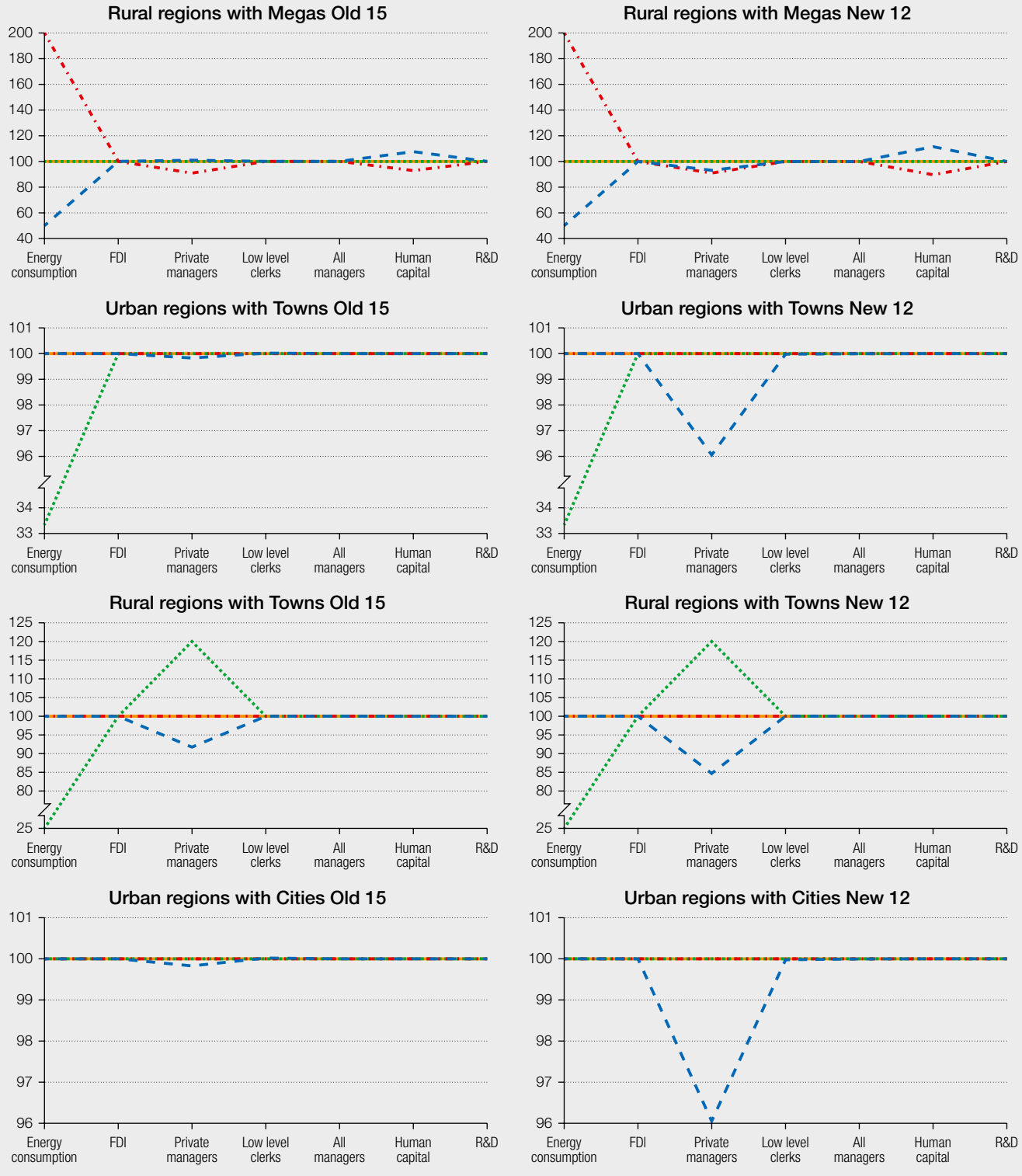
Regional targets in the exploratory scenarios by regional typology (2)



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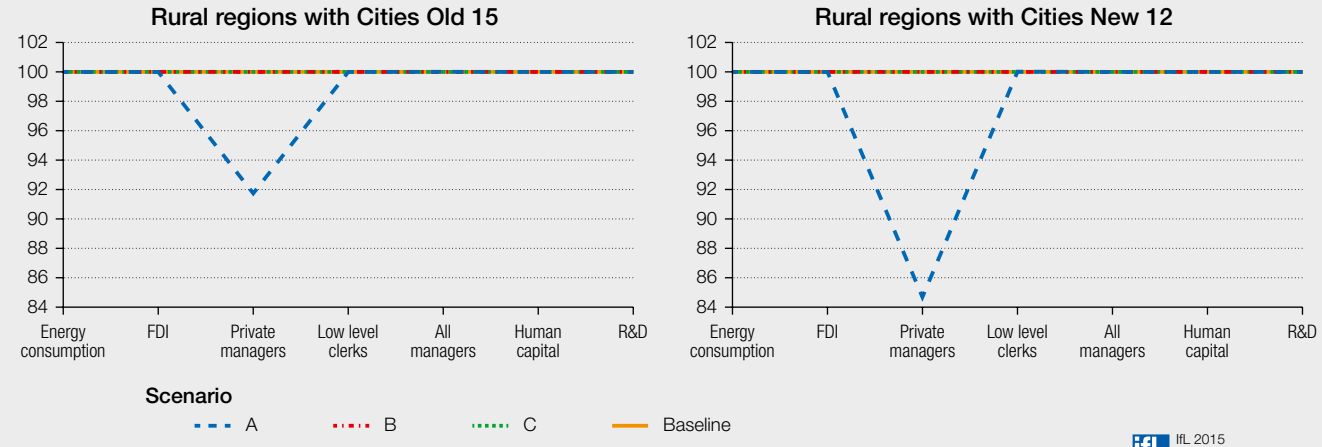
Regional targets in the exploratory scenarios by regional typology (3)



Source: Authors' elaboration on the basis of MASST3 regional targets

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